Harwood's Mill Reservoir
2008

This 265-acre impoundment is the terminal reservoir for the City of Newport News water supply system. Oriana Road (Route 620) divides the reservoir into two sections that differ in terms of habitat and fish population characteristics. The northern section has an abundance of cypress trees and is the better producer of bass while the southern section is more open water and has been better for yellow perch and historically northern pike.

A complete community sample was conducted on April 24, 2007. The reservoir was last sampled on June 13, 2005. Four electrofishing runs of 1,200 seconds each were conducted. The total effort of 4,800 seconds (80 minutes) allowed for a representative sample of the fishery. The runs were broken up so that 2 runs were conducted on lower half of the reservoir and the other 2 runs on the upper section. The survey revealed great diversity with 18 species collected. An in depth look at several of these species will be covered in this report.

Table 1. Summary of primary fish species collected from Harwood's Mill Reservoir on April 24, 2007.

Species	# Collected	Largest Length	Average Length
Largemouth Bass	103	21.8"	14.1"
Bluegill	80	7.6"	4.2"
Chain Pickerel	7	22.5"	18.2"
Yellow Perch	59	7.2"	4.6"
Brown Bullhead	49	8.0"	6.6"

The 2007 electrofishing survey revealed an abundance of quality-sized largemouth bass. The largemouth bass fishery consists of a high proportion of fish greater than 15 inches in length. This is great for fishermen interested in catching a preferred-sized bass. Sampling efforts collected 103 largemouth bass for an impressive Catch Per Unit of Effort (CPUE) of 77.3 f/h. The 2005 CPUE of 103.5 f/h was assisted by the presence of 50 YOY (young of year) bass during the June sample. Removing the 50 YOY bass from the sample allowed for a CPUE of 66 f/hr. The 2007 CPUE is the highest catch rate recorded from past spring electrofishing surveys. Harwood's Mill Reservoir has historically had low catch rates of bass during electrofishing efforts. Samples from 1989, 1994, 1997, 2000 and 2004 produced CPUE values of 45.4, 25.7, 12.4, 28.9 and 14.8 f/h,

respectively. The 2007 sample collected a total of 51 bass from the upper section while the lower half produced 52 bass.

Figure 1. Length frequency of largemouth bass collected from Harwood's Mill Reservoir, April 24, 2007 (N = 103, CPUE = 77.3 f/h)

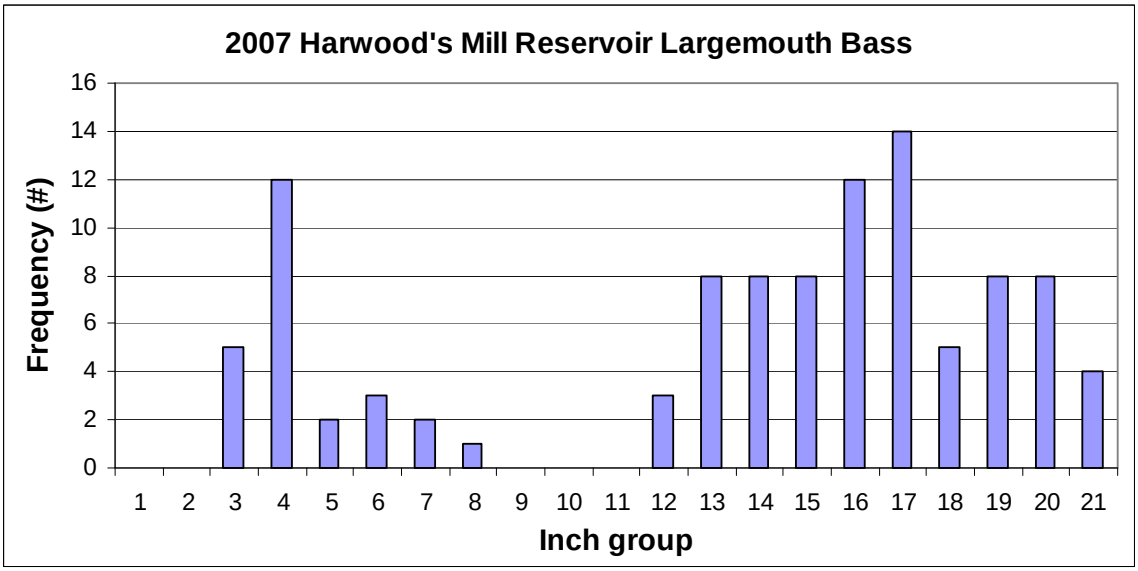
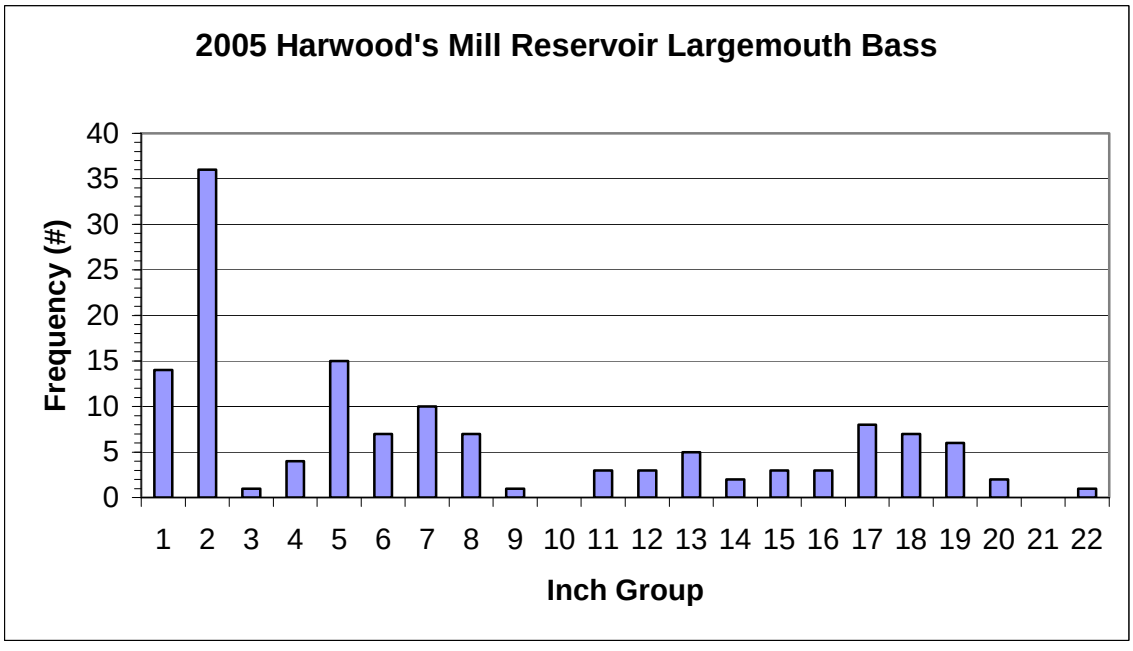


Figure 2. Length frequency of largemouth bass collected from Harwood's Mill Reservoir, June 13, 2005 (N = 138, CPUE = 103.5 f/h)



Fisheries biologists of the past established certain size classifications to describe the fish they collected. It is through these size classifications that population dynamics are analyzed. The size designations are stock, quality, preferred, memorable, and trophy. The PSD (Proportional Stock Density) is the proportion of stock-sized bass (8 inches or larger) that are also equal to or greater than 12 inches (quality size**).** A balanced bass/bluegill fishery has a bass PSD value within the 40 – 70 range. With largemouth bass being the most popular game fish in this country, it has been considered that a "preferred" bass is one that is over 15 inches in length. The RSD-P (Relative Stock Density of Preferred bass) is the proportion of stock-sized bass that are also equal to or greater than 15 inches in length. The 2007 values for PSD and RSD-P (99 and 75) were extremely high. The presence of only one bass in the 8 to 11 inch range assisted with the elevated values. The PSD value represents the collection of 78 quality-sized bass with a total of 79 stock-sized bass. The RSD-P value represents the 59 preferred-sized bass (15 inches or greater) to the total of 78 stock-sized bass. The largest bass by length measured 21.8 inches and weighed 6.43 pounds. The largest bass by weight measured 21.4 inches and weighed 8.01 pounds (citation weight of 8 pounds). This bass was a very healthy female that brought some excitement to the day. A citation bass by weight is a rather rare occasion during an electrofishing run in Region 1. The 2005 survey revealed a total of 9 bass larger than 4 pounds. The 2007 survey was incredible in that 22 bass greater than 4 pounds were collected. Of those bass, 15 of them were greater than 5 pounds. The lower half of the reservoir was more productive for larger bass with 14 of the four pound plus bass collected from that region.

Weights were taken on largemouth bass to calculate relative weight values. Relative weight values are an indication of body condition. A value from 95 to 100 represents a fish that is in the healthy range and finding a decent amount of food. A higher relative weight value indicates fish with a better body condition. The overall relative weight value was a very impressive 114. The relative weight values for stock, quality, preferred and memorable bass (>8", >12", >15" and >20") were 114, 114, 115 and 125 respectively. These relative weight values are well above the preferred range of 95 to 100 and show that the bass are finding plenty of food.

Harwood's Mill Reservoir has an average bluegill population. The electrofishing sample of 2007 collected only 80 bluegills (CPUE = 60 f/hr). This catch rate is less than the 2005 survey (CPUE = 90.75 f/h). The 2007 survey was similar to 2005 with the majority of collected bluegills measured in the 3 to 6 inch range. The average sized bluegill measured 4.2 inches. The largest bluegill measured 7.6 inches. The bluegill PSD value of 20 showed a slight increase from 2005 (PSD = 17). This increase in PSD is favorable in terms of describing the size structure of the population, but one must remember that only 11 bluegills were larger than 6 inches in length. Bluegill growth rates are most likely feeling the pressure from direct competition from the yellow perch populations.

Figure 3. Length frequency of bluegill collected by electrofishing of Harwood's Mill Reservoir, April 24, 2007 (N = 80, CPUE = 60 f/h)

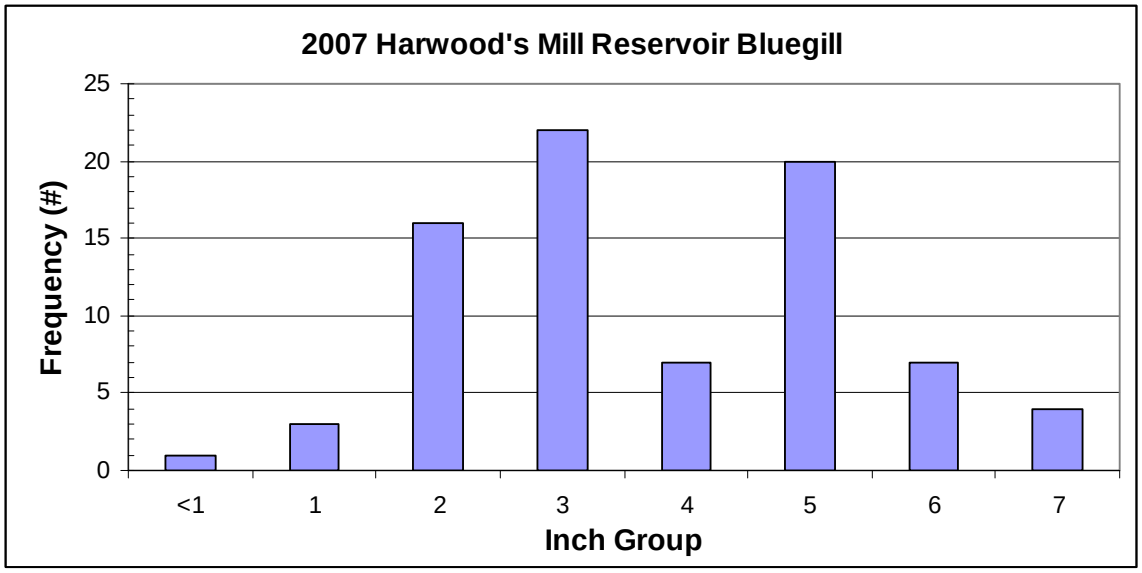
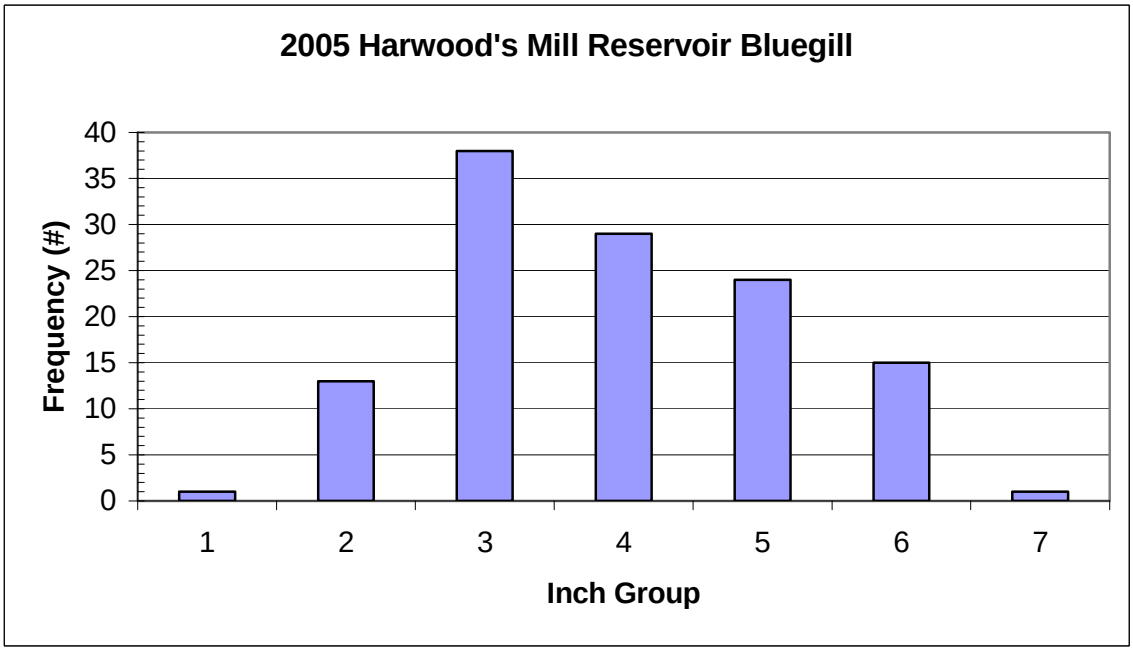


Figure 4. Length frequency of bluegill collected by electrofishing of Harwood's Mill Reservoir, June 13, 2005 (N = 121, CPUE = 90.75 f/h)



Black crappie fishery is severely limited. Past electrofishing surveys of Harwood's Mill Reservoir have yielded limited numbers of black crappies. Surveys have collected only a handful of black crappies at a time. A total of 5 black crappies were collected during the 2005 electrofishing survey. Only 2 black crappies were sampled in the 2004 electrofishing survey. Those fish were of noteworthy size at 14.25 and 15.3 inches long. The 2007 survey could not beat any of those totals as only one crappie of 10.4 inches was collected. Black crappies tend to school up tightly in deeper water more than bass and bluegill. So the typical shoreline electrofishing run could miss the black crappies if they were holding in deeper water. The majority of black crappie data has been collected over the years through gill netting. Another successful method to catch black crappies is by the use of trap nets. The reservoir was last trap netted in the spring of 1994 and decent numbers of black crappie were collected. Trap nets were set on April 12th and 13th, 2005 in hopes of monitoring the black crappie population. Both sides of the reservoir were sampled with 10 trap nets. A total of 20 net nights produced only 6 black crappies. Two juvenile crappies were collected from the lower half and 4 crappies in the 10 to 14.5 inch range were collected from the upper region. Based upon our results from various samples, the black crappie population does not appear to be very strong in terms of overall abundance.

The yellow perch population appears to be dominated by the presence of small fish. The 2007 survey collected 59 yellow perch for a CPUE of 44.3 f/hr. This catch rate is less than the 2005 sample (N = 316, CPUE 237 f/h). The majority of the 2005 sample (N = 287, 91%) consisted of yellow perch in the 1.5 to 2.5 inch range. The 2007 survey collected yellow perch ranging in size from 3.5 to 7.2 inches. The fishery provides limited action for yellow perch. The majority of these small perch will provide forage for largemouth bass and chain pickerel.

The survey yielded a limited abundance of chain pickerel with only 7 collected (CPUE: 5.3/hr). This catch rate is down slightly from the 2005 survey (N = 12, CPUE: 9/hr). The 2007 size distribution ranged from 8 to 22.5 inches. The average sized chain pickerel measured 18.2 inches in length. The chain pickerel will have the ability to surprise an angler from time to time.

The electrofishing sample of 2007 consisted of 18 fish species. The sample collected the above listed species along with limited numbers of redear sunfish (2), warmouth (3), yellow bullhead (3), common carp (1), American eel (16), pirate perch (1), white perch (2), gizzard shad (3), banded sunfish (4) and bluespotted sunfish (13). Other non-game species collected in higher abundance were the creek chubsuckers (105), eastern silvery minnows (84), and brown bullheads (49).

Sample Summary

The 2007 electrofishing survey of Harwood's Mill Reservoir provided a decent surprise in the size structure of the largemouth bass population. The 2005 survey revealed good numbers of 3 to 4 pound bass. The 2007 survey was perfectly timed to collect an abundance of 4 to 8 pound bass in a pre-spawn pattern. The overall bass collection was one of the best we have seen from any of the public impoundments in Region 1, District 1. The size structure of the bluegills and yellow perch leaves something to be desired with the majority of these fish in the 3 to 6 inch range. The chain pickerel population is not very abundant, but some quality-sized pickerel up to 22.5 inches in length were collected. Harwood's Mill Reservoir provides a wide assortment of fish diversity with a total of 18 species collected. Anglers may find some excitement from a variety of fish species that are present.

Boats can be rented on both sides of the reservoir on weekends and public holidays from May through September. Private boats can be launched from the ramp on the southern portion of the reservoir. There are picnic facilities and a popular biking trail. Further details can be obtained from the Newport News Department of Parks and Recreation at 757-886-7912. The reservoir is Oriana Road (Route 620) off of Denbigh Boulevard (Route 173).